Individual based measure of interactive/isolationist degree of infracommunities: towards an assessment of the role of intrinsic and extrinsic factors.

Nicola Ferrari[1], Paolo Lanfranchi[1]

[1]DIPAV Sezione di Patologia Generale e Parassitologia Veterinaria, Università degli Studi di Milano. Via Celoria 10 Italy. nicola.ferrari@unimi.it

The comprehension of the parasite communities structure is a key topic of the parasite ecology pointing the attention to the influence of interaction between co-occuring species.
The idea that communities maybe something more than the result of the current assemblage and that they may reflect the evolutionary process, lead to the proposal of the isolationist/interactive classification of parasite communities. A limit of this vision is that communities are classified, mainly through qualitative assessment, in one of these extreme class missing the continuum occurring in nature. Attempts to develop methods to quantify the isolationist/interactive degree have been addressed mainly at host population level.
Besides, parasite interactions occur within individual hosts and considering the observed heterogeneities of parasites intensities, host individuals may register different isolationism/interaction degree. The analysis at population level may miss to identify the role of intrinsic and extrinsic factors.
We developed a measure at single host level based on the concept of crowding which expresses the mean number of interactions with other parasites each one experiences.
We applied this measure to the parasite community of mountain ruminants which is characterized by high variability between seasons, age and sexes. The mean parasite interaction/isolationism showed high variability mainly related to temporal effect with lesser influence played by host factors.